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 IBM Technical Disclosure Bulletins

Search:

L6

Refine Search

Recall Text

Clear

Interrupt

### Search History

DATE: Friday, June 25, 2004    [Printable Copy](#)    [Create Case](#)

<u>Set</u> <u>Name</u>	<u>Query</u>	<u>Hit</u> <u>Count</u>	<u>Set</u> <u>Name</u> result set
side by side			
	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR		
<u>L6</u>	(music and data near type and first and second and (search\$ or retriev\$) and (group\$ or cluster\$) and record\$ and main near5 group\$ and sub near5 group\$).clm.	0	<u>L6</u>
<u>L5</u>	(music and data near type and first and second and (search\$ or retriev\$) and (group\$ or cluster\$) and record\$ and main near5 group\$ and sub near5 group\$).ab.	0	<u>L5</u>
<u>L4</u>	(music and data near type and first and second and (search\$ or retriev\$) and (group\$ or cluster\$) and record\$ and main near5 group\$ and sub near5 group\$).ti.	0	<u>L4</u>
<u>L3</u>	music and data near type and first and second and (search\$ or retriev\$) and (group\$ or cluster\$) and record\$ and main near5 group\$ and sub near5 group\$	7	<u>L3</u>
<u>L2</u>	music and data near type and first and second and (search\$ or retriev\$) and	2547	<u>L2</u>

(group\$ or cluster\$) and record\$  
L1 music and data near type and first and second and (search\$ or retriev\$) and  
(group\$ or cluster\$) 2966 L1

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**Search Results - Record(s) 1 through 7 of 7 returned.**

☐ 1. Document ID: US 20040088646 A1

**Using default format because multiple data bases are involved.**

L3: Entry 1 of 7

File: PGPB

May 6, 2004

PGPUB-DOCUMENT-NUMBER: 20040088646

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040088646 A1

TITLE: Collaborative content coherence using mobile agents in peer-to-peer networks

PUBLICATION-DATE: May 6, 2004

**INVENTOR-INFORMATION:**

NAME	CITY	STATE	COUNTRY	RULE-47
Yeager, William J.	Menlo Park	CA	US	
Chen, Rita Y.	Cupertino	CA	US	
Soto, Juan C.	San Francisco	CA	US	

US-CL-CURRENT: 715/500

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWMC	Draw. De
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☐ 2. Document ID: US 20040088369 A1

L3: Entry 2 of 7

File: PGPB

May 6, 2004

PGPUB-DOCUMENT-NUMBER: 20040088369

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040088369 A1

TITLE: Peer trust evaluation using mobile agents in peer-to-peer networks

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWMC	Draw. De
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☐ 3. Document ID: US 20040088348 A1

L3: Entry 3 of 7

File: PGPB

May 6, 2004

PGPUB-DOCUMENT-NUMBER: 20040088348

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040088348 A1

TITLE: Managing distribution of content using mobile agents in peer-to-peer networks

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 4. Document ID: US 20040088347 A1

L3: Entry 4 of 7

File: PGPB

May 6, 2004

PGPUB-DOCUMENT-NUMBER: 20040088347

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040088347 A1

TITLE: Mobile agents in peer-to-peer networks

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 5. Document ID: US 20020161762 A1

L3: Entry 5 of 7

File: PGPB

Oct 31, 2002

PGPUB-DOCUMENT-NUMBER: 20020161762

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020161762 A1

TITLE: Information processor, processing method therefor, and program storage medium

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 6. Document ID: US 5406425 A

L3: Entry 6 of 7

File: USPT

Apr 11, 1995

US-PAT-NO: 5406425

DOCUMENT-IDENTIFIER: US 5406425 A

TITLE: ISO/IEC compatible digital audio tape digital data storage system with increased data transfer rate

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 7. Document ID: US 5287478 A

L3: Entry 7 of 7

File: USPT

Feb 15, 1994

US-PAT-NO: 5287478

DOCUMENT-IDENTIFIER: US 5287478 A

TITLE: Digital data tape storage system utilizing plurality of read/write heads  
with system diagnostic capability

Full	Title	Citation	Front	Review	Classification	Date	Reference	Generate OACS	Attachments	Claims	KMMC	Draw De
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Terms	Documents
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1 [Multimedia Processing: Hierarchical filtering method for content-based music retrieval via ac](#)

Jyh-Shing Roger Jang, Hong-Ru Lee

October 2001 **Proceedings of the ninth ACM international conference on Multimedia**

Full text available: [pdf\(722.96 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

This paper presents an implementation of a content-based music retrieval system that can take a (8-second clip of singing or humming) via a microphone and then retrieve the intended song from containing over 3000 candidate songs. The system, known as Super MBox, demonstrates the feasibility of music retrieval with a high success rate. Super MBox first takes the user's acoustic input from a microphone and converts it into a pitch vector. Then a hierarchical search is performed on the pitch vector.

**Keywords:** audio indexing and retrieval, audio signal processing, content-based music retrieval, programming, dynamic time warping, nearest neighbor search, pattern recognition, query by singing

2 [Music: Approximate matching algorithms for music information retrieval using vocal input](#)

Richard L. Kline, Ephraim P. Glinert

November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**

Full text available: [pdf\(165.02 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Effective use of multimedia collections requires efficient and intuitive methods of searching and browsing. This paper considers databases which store music and explores how these may best be searched by providing some musical form. For the average person, humming several notes of the desired melody is the most natural method for providing this input, but such input is very likely to contain several errors. Previously implemented systems for query-by-humming have not been able to handle such errors.

**Keywords:** music information retrieval, query by humming

3 [A practical query-by-humming system for a large music database](#)

Naoko Kosugi, Yuichi Nishihara, Tetsuo Sakata, Masashi Yamamuro, Kazuhiko Kushima

October 2000 **Proceedings of the eighth ACM international conference on Multimedia**

Full text available: [pdf\(1.05 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

A music retrieval system that accepts hummed tunes as queries is described in this paper. This system is designed to be robust to errors in humming because a hummed tune may contain errors. The retrieval result is a list of song names ordered by the closeness of the match. Our ultimate goal is that the correct song should be first on the list. The system is implemented on a large music database.



eventually our system's similarity retrieval should allow for only one correct answer.

The most significant improvement our system has ove ...

4 Burst tries: a fast, efficient data structure for string keys

April 2002 **ACM Transactions on Information Systems (TOIS)**, Volume 20 Issue 2

Full text available:  pdf(324.84 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)


Many applications depend on efficient management of large sets of distinct strings in memory. For index construction for text databases a record is held for each distinct word in the text, containing information such as counters. We propose a new data structure, the burst trie, that has significant advantages over existing options for such applications: it uses about the same memory as a binary search tree; it is fast, while not as fast as a ...

**Keywords:** Binary trees, splay trees, string data structures, text databases, tries, vocabulary access

5 Content-based retrieval for music collections

Yuen-Hsien Tseng

August 1999 **Proceedings of the 22nd annual international ACM SIGIR conference on Research and development in information retrieval**

Full text available:  pdf(99.27 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** approximate string matching, key melody extraction, music indexing, music retrieval, query encoding, query suggestion

6 Posters: Efficient K-NN search in polyphonic music databases using a lower bounding mechanism

Ning-Han Liu, Yi-Hung Wu, Arbee L. P. Chen

November 2003 **Proceedings of the 5th ACM SIGMM international workshop on Multimedia in**

Full text available:  pdf(506.60 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Querying polyphonic music from a large data collection is an interesting and challenging topic. We attempt to provide efficient techniques for content-based retrieval in polyphonic music databases. These techniques can also be polyphonic. However, most of the techniques do not perform the approximate matching well. We present a novel method to efficiently retrieve k music works that contain segments most similar to the query based on the edit distance. A list-based ...

**Keywords:** indexing methods, lower bounded edit distance, polyphonic music information retrieval

7 Musical information retrieval using melodic surface

Massimo Melucci, Nicola Orio

August 1999 **Proceedings of the fourth ACM conference on Digital libraries**

Full text available:  pdf(674.04 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** automatic indexing, automatic melodic segmentation, computer music, information retrieval, digital libraries

8 Music and digital libraries: from users to algorithms: Content-based indexing of musical scores

Richard A. Medina, Lloyd A. Smith, Deborah R. Wagner

May 2003 **Proceedings of the third ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(118.63 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a method of automatically creating a content-based index of musical scores. the themes, or motifs, that appear in the music. The method was tested by building an index of 2 movements from the classical music literature. For every movement, the system captured the primary variation of the primary theme. In addition, it captured 13 of 28 secondary themes. The resulting size of the database. A further reduction ...

9 Multimedia: Peer-to-peer architecture for content-based music retrieval on acoustic data

Cheng Yang

May 2003 **Proceedings of the twelfth international conference on World Wide Web**

Full text available:  pdf(146.73 KB)



Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In traditional peer-to-peer search networks, operations focus on properly labeled files such as music. actual search is often limited to text tags. The explosive growth of available multimedia documents for more flexible search capabilities, namely search by content. Most content-based search algorithms are computationally intensive, making them inappropriate for a peer-to-peer environment. In this paper, we describe a content-based music retrieval algorithm ...

**Keywords:** acoustic data, content-based music retrieval, distributed, load balancing, peer-to-peer

10 Computing curricula 2001

September 2001 **Journal on Educational Resources in Computing (JERIC)**

Full text available:  pdf(613.63 KB)  html(2.78 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

11 Music digital libraries: A comparison of melodic database retrieval techniques using sung queries

Ning Hu, Roger B. Dannenberg

July 2002 **Proceedings of the second ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(248.70 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Query-by-humming systems search a database of music for good matches to a sung, hummed, or whistled melody. Errors in transcription and variations in pitch and tempo can cause substantial mismatch between the query and the database. Thus, algorithms for measuring melodic similarity in query-by-humming systems should be robust to these variations of search algorithms in an effort to improve search precision. In particular, we describe an algorithm that significantly outperforms ...

**Keywords:** dynamic programming, melodic comparison, melodic search, music information retrieval

12 Evaluation of a simple and effective music information retrieval method

Stephen Downie, Michael Nelson

July 2000 **Proceedings of the 23rd annual international ACM SIGIR conference on Research and development in information retrieval**

Full text available:  pdf(795.28 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)




We developed, and then evaluated, a music information retrieval (MIR) system based upon the intervals of the melodies of a collection of 9354 folksongs. The songs were converted to an interval-only representation of monophonic melodies and then fragmented into length- $n$  subsections called  $n$ -grams. The length  $n$  and the degree to which we precisely represent the intervals are variables analyzed in this paper. The collection of "musical words" data ...

**Keywords:** efficient search over non-textual information, results analysis and presentation for MI

13 SmartMusicKIOSK: music listening station with chorus-search function

Masataka Goto

November 2003 **Proceedings of the 16th annual ACM symposium on User interface software :**

Full text available:  pdf(397.15 KB)  mov(4:26 MIN)  wmv(4:26 MIN)


Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a new music-playback interface for trial listening, *SmartMusicKIOSK*. In music listening of CD music is not usually a passive experience -- customers often search out the chorus using the fast-forward button. Listening of this type, however, has not been traditionally supported. This interface achieves a function for jumping to the chorus section and other key parts of a song plus a function structure. These f ...

**Keywords:** audio visualization, chorus detection, music interaction, music-playback interface, son

14 Curriculum 68: Recommendations for academic programs in computer science: a report of the committee on computer science

William F. Atchison, Samuel D. Conte, John W. Hamblen, Thomas E. Hull, Thomas A. Keenan, William McCluskey, Silvio O. Navarro, Werner C. Rheinboldt, Earl J. Schweppe, William Viavant, David M. Youn, March 1968 **Communications of the ACM**, Volume 11 Issue 3

Full text available:  pdf(6.63 MB)

Additional Information: [full citation](#), [references](#), [citations](#)

**Keywords:** computer science academic programs, computer science bibliographies, computer science curriculum, computer science education, computer science graduate programs, undergraduate programs

15 An interface for melody input

Lutz Prechelt, Rainer Typke

June 2001 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 8 Issue 2

Full text available:  pdf(301.45 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

We present a software system, called Tunserver, which recognizes a musical tune whistled by the user, searches a database, and returns its name, composer, and other information. Such a service is useful for restaurants, music stores, etc., and is also a step toward the long-term goal of communicating with a machine as one would with a human being. Tunserver is implemented as a public Java-based WWW service and contains approximately 10,000 motifs. Tun ...

**Keywords:** input mode, melody, motif, recognition, theme, tune

16 Music-notation searching and digital libraries

Donald Byrd

January 2001 **Proceedings of the first ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(245.26 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

Almost all work on music information retrieval to date has concentrated on music in the audio and MIDI domains. However, music in the form of notation, especially Conventional Music Notation (CMN), is of great interest to musically-trained persons, both amateurs and professionals, and searching CMN has gained importance in music libraries. One obvious reason little has been done on music retrieval in CMN form is the over

of CMN, which requires a very s ...

**17 Music digital libraries: HMM-based musical query retrieval**

Jonah Shifrin, Bryan Pardo, Colin Meek, William Birmingham

July 2002

**Proceedings of the second ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(424.83 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

We have created a system for music search and retrieval. A user sings a theme from the desired in the database are represented as hidden Markov models (HMMs). The query is treated as an ob and a piece is judged similar to the query if its HMM has a high likelihood of generating the query returned to the user in rank-order. This paper reports the basic approach for the construction of t themes, encoding and transcri ...


**Keywords:** database, forward algorithm, hidden Markov model, melody, music

**18 SpeechSkimmer: a system for interactively skimming recorded speech**

Barry Arons

March 1997

**ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 4 Issue 1

Full text available:  pdf(1.03 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

Listening to a speech recording is much more difficult than visually scanning a document because temporal nature of audio. Audio recordings capture the richness of speech, yet it is difficult to dir information. This article describes techniques for structuring, filtering, and presenting recorded sp to navigate and interactively find information in the audio domain. This article describes the Spee interacti ...


**Keywords:** audio browsing, interactive listening, nonspeech audio, speech as data, speech skimr interfaces, time compression

**19 CiteSeer: an autonomous Web agent for automatic retrieval and identification of interesting pub**

Kurt D. Bollacker, Steve Lawrence, C. Lee Giles

May 1998

**Proceedings of the second international conference on Autonomous agents**

Full text available:  pdf(1.07 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**20 Experiments in social data mining: The TopicShop system**

Brian Amento, Loren Terveen, Will Hill, Deborah Hix, Robert Schulman

March 2003

**ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 10 Issue 1

Full text available:  pdf(377.92 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

*Social data mining systems* enable people to share opinions and benefit from each other's experie mining and redistributing information from computational records of social activity such as Usenet usage history, citations, or hyperlinks. Some general questions for evaluating such systems are: ( information valuable? and (2) do interfaces based on the information improve user task performa on *TopicShop*, a syst ...

**Keywords:** Cocitation analysis, collaborative filtering, computer-supported cooperative work, info social filtering, social network analysis

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Jyh-Shing Roger Jang, Hong-Ru Lee

October 2001 **Proceedings of the ninth ACM international conference on Multimedia**

Full text available: [pdf\(722.96 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [ir](#)

This paper presents an implementation of a content-based music retrieval system that can take a clip of singing or humming) via a microphone and then retrieve the intended song from a database of songs. The system, known as Super MBox, demonstrates the feasibility of real-time music retrieval. Super MBox first takes the user's acoustic input from a microphone and converts it into a pitch vector.

**Keywords:** audio indexing and retrieval, audio signal processing, content-based music retrieval, time warping, nearest neighbor search, pattern recognition, query by singing

2 [A practical query-by-humming system for a large music database](#)

Naoko Kosugi, Yuichi Nishihara, Tetsuo Sakata, Masashi Yamamuro, Kazuhiko Kushima

October 2000 **Proceedings of the eighth ACM international conference on Multimedia**

Full text available: [pdf\(1.05 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [ir](#)

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The most significant improvement our system has over ...

3 [Music: Approximate matching algorithms for music information retrieval using vocal input](#)

Richard L. Kline, Ephraim P. Glinert

November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**

Full text available: [pdf\(165.02 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index term](#)

Effective use of multimedia collections requires efficient and intuitive methods of searching and browsing databases which store music and explores how these may best be searched by providing input queries. For the average person, humming several notes of the desired melody is the most straightforward method. Such input is very likely to contain several errors. Previously proposed implementations of so-called

**Keywords:** *music information retrieval, query by humming*

4 Computing curricula 2001

September 2001 **Journal on Educational Resources in Computing (JERIC)**


Full text available:  pdf(613.63 KB)  html(2.78 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index term](#)

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Barry Arons

March 1997

**ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 4 Issue 1

Full text available:  pdf(1.03 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index term](#)

Listening to a speech recording is much more difficult than visually scanning a document because of the nature of audio. Audio recordings capture the richness of speech, yet it is difficult to directly browse an article that describes techniques for structuring, filtering, and presenting recorded speech, allowing a user to find information in the audio domain. This article describes the SpeechSkimmer system for interactive audio browsing.

**Keywords:** audio browsing, interactive listening, nonspeech audio, speech as data, speech skimming, time compression

6 An interface for melody input

Lutz Prechelt, Rainer Typke

June 2001

**ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 8 Issue 2

Full text available:  pdf(301.45 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index term](#)

We present a software system, called Tuneserver, which recognizes a musical tune whistled by the user and returns its name, composer, and other information. Such a service is useful for track retrieval at concerts and is also a step toward the long-term goal of communicating with a computer much like one would communicate with a human. Tuneserver is implemented as a public Java-based WWW service with a database of approximately 10,000 tunes.

**Keywords:** input mode, melody, motif, recognition, theme, tune

7 Musical information retrieval using melodic surface

Massimo Melucci, Nicola Orio

August 1999

**Proceedings of the fourth ACM conference on Digital libraries**

Full text available:  pdf(674.04 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


**Keywords:** automatic indexing, automatic melodic segmentation, computer music, information retrieval

8 Content-based retrieval for music collections

Yuen-Hsien Tseng

August 1999

**Proceedings of the 22nd annual international ACM SIGIR conference on Research in information retrieval**

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Additional Information: [full citation](#), [references](#), [citations](#), [index term](#)

**Keywords:** approximate string matching, key melody extraction, music indexing, music retrieval

suggestion

9 VARIATIONS: a digital music library system at Indiana University

Jon W. Dunn, Constance A. Mayer

August 1999 **Proceedings of the fourth ACM conference on Digital libraries**

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Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** digital audio, digital libraries, music libraries

10 SmartMusicKIOSK: music listening station with chorus-search function

Masataka Goto

November 2003 **Proceedings of the 16th annual ACM symposium on User interface software**

Full text available:  pdf(397.15 KB)  mov(4:26 MIN)  wmv(4:26 MIN)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a new music-playback interface for trial listening, *SmartMusicKIOSK*. In music CD music is not usually a passive experience -- customers often search out the chorus or "hook" button. Listening of this type, however, has not been traditionally supported. This research achieves chorus section and other key parts of a song plus a function for visualizing song structure. These

**Keywords:** audio visualization, chorus detection, music interaction, music-playback interface, so

11 Multimedia: Peer-to-peer architecture for content-based music retrieval on acoustic data

Cheng Yang

May 2003 **Proceedings of the twelfth international conference on World Wide Web**

Full text available:  pdf(146.73 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In traditional peer-to-peer search networks, operations focus on properly labeled files such as music search is often limited to text tags. The explosive growth of available multimedia documents in recent search capabilities, namely search by content. Most content-based search algorithms are computationally inappropriate for a peer-to-peer environment. In this paper, we discuss a content-based music re

**Keywords:** acoustic data, content-based music retrieval, distributed, load balancing, peer-to-peer

12 Music and digital libraries: from users to algorithms: Content-based indexing of musical scores

Richard A. Medina, Lloyd A. Smith, Deborah R. Wagner

May 2003 **Proceedings of the third ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(118.63 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a method of automatically creating a content-based index of musical scores, themes, or motifs, that appear in the music. The method was tested by building an index of 25 or classical music literature. For every movement, the system captured the primary theme, or a variation. In addition, it captured 13 of 28 secondary themes. The resulting index was 14% of the size of the c

13 Music digital libraries: A comparison of melodic database retrieval techniques using sung queries

Ning Hu, Roger B. Dannenberg

July 2002 **Proceedings of the second ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(248.70 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



Query-by-humming systems search a database of music for good matches to a sung, hummed, or transcribed melody. However, transcription and variations in pitch and tempo can cause substantial mismatch between queries and the target melody. Measuring melodic similarity in query-by-humming systems should be robust. We compare several methods in an effort to improve search precision. In particular, we describe a new frame-based algorithm to

**Keywords:** dynamic programming, melodic comparison, melodic search, music information retrieval

14 Evaluation of a simple and effective music information retrieval method

Stephen Downie, Michael Nelson

July 2000

**Proceedings of the 23rd annual international ACM SIGIR conference on Research in information retrieval**

Full text available:  pdf(795.28 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [ir](#)

We developed, and then evaluated, a music information retrieval (MIR) system based upon the interval representation of a collection of 9354 folksongs. The songs were converted to an interval-only representation of the melody. The length of the fragmented melody into length-n subsections called n-grams. The length of these n-grams and the degree to which the intervals are variables analyzed in this paper. We constructed a collection of "music

**Keywords:** efficient search over non-textual information, results analysis and presentation for MIR

15 Music-notation searching and digital libraries

Donald Byrd

January 2001

**Proceedings of the first ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(245.26 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [ir](#)

Almost all work on music information retrieval to date has concentrated on music in the audio and notation domains. However, music in the form of notation, especially Conventional Music Notation (CMN), is not easily processed by trained persons, both amateurs and professionals, and searching CMN has great value for digital libraries. The reason little has been done on music retrieval in CMN form is the overwhelming complexity of CMN.

16 Music digital libraries: HMM-based musical query retrieval

Jonah Shifrin, Bryan Pardo, Colin Meek, William Birmingham

July 2002

**Proceedings of the second ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(424.83 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [ir](#)

We have created a system for music search and retrieval. A user sings a theme from the desired database and the system represents the theme as hidden Markov models (HMMs). The query is treated as an observation. The system judges a melody similar to the query if its HMM has a high likelihood of generating the query. The top piece is returned in rank-order. This paper reports the basic approach for the construction of the target database of the

**Keywords:** database, forward algorithm, hidden Markov model, melody, music

17 Music and digital libraries: from users to algorithms: An ethnographic study of music information  
the design of a music digital library

Sally Jo Cunningham, Nina Reeves, Matthew Britland

May 2003

**Proceedings of the third ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(156.59 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index term](#)

At present, music digital library systems are being developed based on anecdotal evidence of user information seeking behavior, and a priori assumptions of typical usage scenarios. Emphasis has been placed into music document representation, efficient searching, and audio-based searching, rather than into understanding the information needs or information behavior of a target user group. This paper focuses on eliciting the

**18** A survey on wavelet applications in data mining

Tao Li, Qi Li, Shenghuo Zhu, Mitsunori Ogihara

December 2002 **ACM SIGKDD Explorations Newsletter**, Volume 4 Issue 2

Full text available:  pdf(330.06 KB)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Recently there has been significant development in the use of wavelet methods in various data m  
has been written no comprehensive survey available on the topic. The goal of this is paper to fill t  
a high-level data-mining framework that reduces the overall process into smaller components. Th  
each component are reviewd. The paper concludes by discussing the impact of wavelets on data r

**19** CMIFed: a transportable hypermedia authoring system

Lynda Hardman, Guido van Rossum, Jack Jansen, Sjoerd Mullender

October 1994 **Proceedings of the second ACM international conference on Multimedia**


Full text available:  pdf(1.93 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**20** The Computer in the Humanities and Fine Arts

Sally Yeates Sedelow

June 1970 **ACM Computing Surveys (CSUR)**, Volume 2 Issue 2

Full text available:  pdf(2.01 MB)





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